

ORDINANCE NO. 2001-10-127

**AN ORDINANCE APPROVING AND AUTHORIZING  
THE EXECUTION OF AN AGREEMENT  
WITH THE ILLINOIS DEPARTMENT OF TRANSPORTATION  
(Traffic Signal Master Agreement)**

NOW, THEREFORE, BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF URBANA, ILLINOIS, as follows:

Section 1. That an Agreement between the City of Urbana and the Illinois Department of Transportation, in the form of the copy of said Agreement attached hereto and hereby incorporated by reference, be and the same is hereby authorized and approved.

Section 2. That the Mayor of the City of Urbana, Illinois, be and the same is hereby authorized to execute and deliver and the City Clerk of the City of Urbana, Illinois, be and the same is authorized to attest to said execution of said Agreement as so authorized and approved for and on behalf of the City of Urbana, Illinois.


PASSED by the City Council this 15<sup>th</sup> day of October,  
2001.

AYES: Chynoweth, Hayes, Huth, Otto, Patt, Whelan, Wyman

NAYS:

ABSTAINS:

APPROVED by the Mayor this 31<sup>st</sup> day of October,  
2001.

  
Phyllis D. Clark  
Phyllis D. Clark, City Clerk  
Tod Satterthwaite  
Tod Satterthwaite, Mayor



# Illinois Department of Transportation

Division of Highways / District 5  
13473 IL Highway 133 / P.O. Box 610 / Paris, Illinois / 61944  
Telephone 217/465-4181

Traffic Signal Maintenance  
Master Agreement

November 15, 2001

The Honorable Tod Satterthwaite  
Mayor, City of Urbana  
400 Vine Street  
Urbana, Illinois 61801

Dear Mayor Satterthwaite:

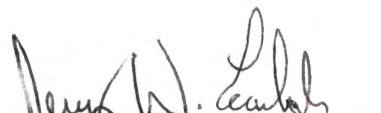
Attached is a fully executed Master Agreement between the City of Urbana and the State of Illinois. This agreement outlines and implements maintenance and energy charge responsibilities for traffic signals installed on State maintained highways within the corporate limits of the City of Urbana. This Master Agreement supersedes previous agreements relative to this subject.

Thank you for your cooperation in the execution of this agreement. If you have any questions, please contact our Traffic Signal & Systems Engineer, Mr. David H. Burkybile, at telephone number 217-465-4181 in Paris, Illinois.

Sincerely,

H. L. Forbes  
District Engineer

By

  
Jerry W. Cearlock  
Engineer of Operations

DHB:jr  
Attach.



**Illinois Department of Transportation**

*Ref. Ord. # 2001-10-127*

**Intergovernmental Agreement**

|  |            |          |
|--|------------|----------|
| LOCAL AGENCY Name                            |            |          |
| City of Urbana                               |            |          |
| Address                                      |            |          |
| 400 Vine Street                              |            |          |
| City, State, Zip                             |            |          |
| Urbana, Illinois 61801                       |            |          |
| Remittance Address (if different from above) |            |          |
| City, State, Zip                             |            |          |
| Telephone Number                             | Fax Number | FEIN/TIN |

Brief Description of Service (full description specified in Parts 4 & 5)  
 This is the Master Agreement for Local Agency maintenance and apportionment of energy costs for traffic control devices located on State highways within or near the Local Agency as shown on the attached Exhibit A. This agreement is authorized by 92 Ill. Adm. Code 544.

|                      |  |  |  |
|----------------------|--|--|--|
| Agreement Term From: |  |  |  |
| <b>July 1, 2001</b>  |  |  |  |
| To:                  |  |  |  |
| <b>June 30, 2011</b> |  |  |  |

**REQUIRED SIGNATURES**

By signing below, LOCAL AGENCY and DEPARTMENT agree to comply with and abide by all provisions set forth in Parts 1-5 herein and any Appendices thereto.

**FOR THE LOCAL AGENCY:**

*Tod Satterthwaite*  
 Signature of Authorized Representative

Tod Satterthwaite      10-17-01  
 Type or Print Name of Authorized Representative      Date

**FOR THE DEPARTMENT:**

*H. L. Forbes*  
 District Engineer, H. L. Forbes, District 5

10/24/01  
 Date

*Joe Hill*  
 Engineer of Operations

11/2/01  
 Date

*John J. Foch*  
 Director of Highways

11-7-01  
 Date

**INTERGOVERNMENTAL AGREEMENT**  
**FOR**  
**LOCAL AGENCY MAINTENANCE OF TRAFFIC CONTROL DEVICES**

This Agreement is by and between

**City of Urbana**

Please type or print legibly LOCAL AGENCY's legal name and address

**400 South Vine Street**

**Urbana, Illinois 61801**

hereinafter called the LOCAL AGENCY, and the State of Illinois, acting by and through its DEPARTMENT of Transportation, hereinafter called the DEPARTMENT.

|           |  |
|-----------|--|
| Part 1    | Scope/Compensation/Term                      |
| Part 2    | General Provisions                           |
| Part 3    | Specific Provisions                          |
| Part 4    | Scope of Services/Responsibilities           |
| Part 5    | Compensation for Services                    |
| Exhibit A | Locations of Subject Traffic Control Devices |
| Exhibit B | Traffic Signal Maintenance Provisions        |

**PART 1**  
**SCOPE / COMPENSATION / TERM**

- A. Scope of Services and Responsibilities.** The DEPARTMENT and the LOCAL AGENCY agree as specified in Part 4.
- B. Compensation.** Compensation (if any) shall be as specified in Part 5.
- C. Term of Agreement.** The term of this Agreement shall be through June 30, 2011.
- D. Amendments.** All changes to this Agreement must be mutually agreed upon by DEPARTMENT and LOCAL AGENCY and be incorporated by written amendment, signed by the parties.

**PART 2**  
**GENERAL PROVISIONS**

- A. Changes.** If any circumstance or condition in this Agreement changes, LOCAL AGENCY must notify the DEPARTMENT in writing within seven days.
- B. Non-Appropriation.** This Agreement is subject to termination and cancellation in any year for which the General Assembly fails to make an appropriation to make payments under the terms of the Agreement.
- C. Records Inspection.** The DEPARTMENT or a designated representative shall have access to LOCAL AGENCY's work and applicable records whenever it is in preparation or progress, and the LOCAL AGENCY shall provide for such access and inspection.
- D. Records Preservation.** The LOCAL AGENCY, shall maintain for a minimum of **three years** after the completion of the Agreement, adequate books, records and supporting documents to verify the amounts, recipients and uses of all disbursements of funds passing in conjunction with the Agreement.

**PART 3**  
**SPECIFIC PROVISIONS**

- A. Invoices.** The amount shown on each invoice shall be in accordance with the rates established in Part 5. All non-labor costs, if allowable, shall be listed and itemized as provided in Part 5.

Any invoices/bills issued by the LOCAL AGENCY to the DEPARTMENT pursuant to this Agreement shall be sent to the following address:

**Illinois Department of Transportation  
District 5 Bureau of Operations  
13473 IL Hwy. 133  
P. O. Box 610  
Paris, Illinois 61944-0610**

All invoices shall be signed by an authorized representative of the LOCAL AGENCY.

- B. Billing and Payment.** All invoices for services performed and expenses incurred by LOCAL AGENCY prior to July 1st of each year must be presented to the DEPARTMENT no later than **August 31** of that same year for payment under this Agreement. Notwithstanding any other provision of this Agreement, the DEPARTMENT shall not be obligated to make payment to LOCAL AGENCY on invoices presented after said date. No payments will be made for services performed prior to the effective date of this Agreement. The DEPARTMENT will send all payments to the LOCAL AGENCY's remittance address listed in this Agreement.
- C. Location of Service.** Service to be performed by the LOCAL AGENCY shall be performed at locations described in Exhibit A.

**PART 4**  
**SCOPE OF SERVICE/RESPONSIBILITIES**

**A. Cost.** The DEPARTMENT and LOCAL AGENCY agree to the maintenance responsibility and to the division of energy costs, for the traffic signals and other traffic control devices listed on the attached Exhibit A.

**B. Maintenance.** Modernization of traffic control devices is not covered under this agreement. It is agreed that the actual maintenance will be performed by the agency indicated on Exhibit A, either with its own forces or through contractual agreements.

**C. Maintenance Level.** It is agreed that the signals and devices shall be maintained to at least the level of maintenance specified in Exhibit B, which is hereby made a part of this agreement. It is understood this will meet the minimum requirements of the Illinois Manual on Uniform Traffic Control Devices for Streets and Highways.

Additional provisions regarding maintenance may be incorporated in this document upon agreement on both parties.

**D. Deficiencies in Maintenance.** It is also understood that if, in the judgement of the District Engineer, the LOCAL AGENCY has not provided maintenance in accordance with the maintenance level specified for those signal installations and devices which it has agreed to maintain, the DEPARTMENT will give the LOCAL AGENCY a 30 day notice in writing of specific deficiencies. If the LOCAL AGENCY has not corrected the deficiencies and notified the DEPARTMENT within the 30-day period, the DEPARTMENT will arrange for the appropriate maintenance efforts and bill the LOCAL AGENCY for its share of the costs.

**E. Interconnect & Timing.** The LOCAL AGENCY agrees to maintain all signal equipment and interconnects associated with interconnected signal systems and interconnects with at-grade railroad crossings. The DEPARTMENT, in cooperation with the LOCAL AGENCY, shall determine the signal timing to coordinate and regulate the flow of traffic. No signal timing shall be changed at any state system intersection without prior DEPARTMENT approval. The DEPARTMENT may elect to allow the LOCAL AGENCY to determine the signal timing to coordinate and regulate the flow of traffic at any location. The LOCAL AGENCY shall inform the DEPARTMENT of any changes made in signal timings. The DEPARTMENT reserves the right to withdraw the privilege of timing signals from the LOCAL AGENCY at any time.

Traffic signals interconnected with an at-grade railroad crossing shall not be modified without prior Illinois Commerce Commission and DEPARTMENT notification and approval. Interconnected signals at an at-grade railroad crossing may be repaired to the original condition; however, the Illinois Commerce Commission and the DEPARTMENT must be notified thereof.

**F. Interconnections: Installation & Damage.** The DEPARTMENT is not responsible for the cost of installing or maintaining traffic signals not on (but interconnected to traffic signals on) U.S. or State routes. Any damage done to State traffic signals in the attempt to connect local traffic signals shall be repaired to the DEPARTMENT's satisfaction and shall be the responsibility of the LOCAL AGENCY.

**G. Master Monitoring Costs.** Master controllers installed on State intersections for the coordination of traffic signals are primarily used for the traffic signals located on U.S. or State routes. The LOCAL AGENCY may connect traffic signals to a State owned master controller for the coordination or operation of non-State owned traffic signals, for the purpose of synchronizing time or gaining remote access. If the LOCAL AGENCY desires a communications link to their

office for monitoring purposes, the LOCAL AGENCY shall pay the entire cost of installing and maintaining such monitoring system.

**H. Payment for Energy Costs.** There will be no reimbursements to the LOCAL AGENCY for energy charges required to operate or illuminate signals or devices listed in Exhibit A before June 30, 2001. The DEPARTMENT will reimburse the LOCAL AGENCY for 50 percent of the DEPARTMENT's proportionate share of such energy charges incurred between July 1, 2001 and June 30, 2002. The DEPARTMENT will reimburse the LOCAL AGENCY for 100 percent of the DEPARTMENT's proportionate share of the energy charges beginning July 1, 2002.

**I. Costs for Pavement Markings.** The DEPARTMENT shall reimburse the LOCAL AGENCY for any DEPARTMENT authorized pavement marking maintenance required for the operations of the traffic signal installation. This shall include any stop bars, crosswalks, symbols, reflectors, edge lines or lane lines required for supplementing the traffic signal installation.

**J. Indemnity.** The LOCAL AGENCY shall indemnify and hold harmless the DEPARTMENT for any and all third party claims for personal injury and property damage arising solely out of the maintenance of the signals and devices listed in Exhibit A.

**K. Maintenance Contractors.** Maintenance contracts shall be subject to DEPARTMENT approval prior to award. The DEPARTMENT, after consultation with the LOCAL AGENCY, reserves the right to reject any electrical/maintenance contractor assigned work by the LOCAL AGENCY that, in the judgment of the DEPARTMENT, has proposed or bid rates or charges in excess of usual and customary for the type of work being performed.

**L. Emergency Vehicle Preemption Devices.** The costs of installation, timing, phasing, and maintenance of emergency vehicle preemption systems shall be the sole responsibility of the LOCAL AGENCY. Any local agency must notify the DEPARTMENT of any change in the emergency vehicle preemption system. However, the DEPARTMENT reserves the right to approve or reject, at any time, the placement of such systems on its traffic signal equipment.

**M. Previous Agreements.** All traffic signal and traffic control device maintenance and electrical energy provisions contained in presently existing agreements or understandings between the DEPARTMENT and the LOCAL AGENCY for traffic signals and/or other traffic control devices covered by this Master Agreement shall upon execution of this Master Agreement by the DEPARTMENT be superseded and be of no force or effect.

All parking ordinances and provisions bearing on items other than traffic signal and traffic control device maintenance and energy charges contained in presently existing agreements or letters of understanding between the DEPARTMENT and the LOCAL AGENCY shall remain in full force and effect.

**N. Amendments.** Exhibit A can be amended to add or delete signals or devices, but only by written amendment signed by the District Engineer and the authorized representative for the LOCAL AGENCY. The amendment shall be effective when fully executed and filed with the Clerk or Secretary of the LOCAL AGENCY.

**O. Plan Review.** All traffic signal plans prepared by others for installation on State highways within municipal corporate limits, which are to be added to this agreement, must be reviewed and approved by the DEPARTMENT and the LOCAL AGENCY.

**PART 5**  
**COMPENSATION FOR SERVICES**

**A. Cost Sharing.** As indicated in Exhibit A, the cost of energy and maintenance of traffic signals and/or other traffic control devices shall be shared in proportion to the number of approaches maintained by each unit of government. The maintenance cost of the interconnect and interconnect related equipment, as listed in Exhibit A, as well as engineering costs for any approved coordination and timing studies, shall be shared in proportion to the approaches maintained by each unit of government at all intersections within the interconnected system.

**B. Billing.** Bills shall be submitted on a **quarterly** basis. The amount billed shall be the costs incurred less any proceeds from third party damage claims received during the billing period for repair of signals or devices that are the responsibility of the DEPARTMENT. Any proposed single expenditure in excess of \$10,000 for repair or damage to an installation must be approved by the DEPARTMENT before the expenditure is made.

The hours, or parts thereof, billed for each maintenance item will be at the actual time directly related to the work task. The DEPARTMENT reserves the right to examine the records of the LOCAL AGENCY to determine that costs billed are fully documented.

LOCAL AGENCY costs are composed of labor, equipment, materials and the quantity of each. The cost for labor will be determined by the actual hourly rate for the employee plus a multiplier calculated by the LOCAL AGENCY to include direct and indirect labor related costs, retirement, social security, health, hospitalization and life insurance, holidays, vacation, sick leave and workers compensation. Equipment costs will be as listed in the Schedule of Average Annual Equipment Ownership Expense. Materials will be at cost.

The cost for contracted work will be the actual cost for the contractor.



**EXHIBIT A****Urbana**

| File | LOCATION   | % OF MAINTENANCE RESPONSIBILITY |       |       | % OF ENERGY CHARGE RESPONSIBILITY |       |       | AGENCY TO DO MAINT. |
|------|--|---------------------------------|-------|-------|-----------------------------------|-------|-------|---------------------|
|      |  | STATE                           | CORP. | OTHER | STATE                             | CORP. | OTHER |                     |
| 1    | US 45/US 150 (Springfield Ave.) & Wright St.             | 50                              | 50    |       | 50                                | 50    |       | Corp.               |
| 2    | US 45/US 150 (University Ave.) & Goodwin St.             | 50                              | 50    |       | 50                                | 50    |       | Corp.               |
| 3    | US 45/US 150 (University Ave.) & Lincoln Ave.            | 50                              | 50    |       | 50                                | 50    |       | Corp.               |
| 4    | US 45/US 150 (University Ave.) & Coler St.               | 50                              | 50    |       | 50                                | 50    |       | Corp.               |
| 5    | US 45/US 150 (University Ave.) & Orchard St.             |                                 | 100   |       |                                   | 100   |       | Corp.               |
| 5.5  | US 45/US 150 (University Ave.) & McCullough St.          | 50                              | 50    |       | 50                                | 50    |       | Corp.               |
| 6    | US 45/US 150 (Universtiy Ave.) & Race St.                | 50                              | 50    |       | 50                                | 50    |       | Corp.               |
| 7    | US 45/US 150 (University Ave.) & Broadway Ave.           | 50                              | 50    |       | 50                                | 50    |       | Corp.               |
| 8    | US 45/US 150 (University Ave.) & US 45 (Cunningham Ave.) | 100                             |       |       | 100                               |       |       | Corp.               |
| 9    | US 45 (Cunningham Ave.) & Kerr St.                       | 50                              | 50    |       | 50                                | 50    |       | Corp.               |
| 10   | US 45 (Cunningham Ave.) & Perkins Rd./Country Club Dr.   | 50                              | 50    |       | 50                                | 50    |       | Corp.               |
| 11   | US 45 (Cunningham Ave.) & Kenyon Rd.                     | 50                              | 50    |       | 50                                | 50    |       | Corp.               |
| 12   | US 45 (Cunningham Ave.) & I-74 North Ramp                | 100                             |       |       | 100                               |       |       | Corp.               |
| 12   | US 45 (Cunningham Ave.) & I-74 South Ramp                | 100                             |       |       | 100                               |       |       | Corp.               |
| 13   | US 45 (Cunningham Ave.) & Anthony Dr.                    | 50                              | 50    |       | 50                                | 50    |       | Corp.               |
| 16   | Lincoln Ave. & I-74 North Ramp                           | 100                             |       |       | 100                               |       |       | Corp.               |

**EXHIBIT A****Urbana**

| File | LOCATION                       | % OF MAINTENANCE RESPONSIBILITY |       |       | % OF ENERGY CHARGE RESPONSIBILITY |       |       | AGENCY TO DO MAINT. |
|------|--------------------------------|---------------------------------|-------|-------|-----------------------------------|-------|-------|---------------------|
|      |                                | STATE                           | CORP. | OTHER | STATE                             | CORP. | OTHER |                     |
| 16   | Lincoln Ave. & I-74 South Ramp | 100                             |       |       | 100                               |       |       | Corp.               |
| 17   | US 150/IL 130 & I-74 Spur      | 100                             |       |       | 100                               |       |       | Corp.               |
| 18   | US 150/IL 130 & Smith Road     | 50                              | 25    | 25    | 50                                | 25    | 25    | Corp.               |
| 19   | US 150 & IL 130/High Cross Rd. | 100                             |       |       | 100                               |       |       | Corp.               |
| 20   | IL 130 & Tatman Court          |                                 | 100   |       |                                   | 100   |       | Corp.               |
| 101  | US 45 System                   | 75                              | 25    |       |                                   |       |       | Corp.               |

**EXHIBIT B**  
**TRAFFIC SIGNAL MAINTENANCE PROVISIONS**

**A. GENERAL PROVISIONS**

**1. CABINET PACK**

Wiring diagrams, phase diagrams, and manuals that are required to be in each traffic signal controller cabinet at the time of construction completion shall remain in the cabinet. Written documentation of all traffic signal timing changes shall be provided in the cabinet. All entries shall be written in a clear and concise manner. The agent of the maintaining agency making any entries shall provide his signature and date of entry. These shall be kept in the cabinet to assist the DEPARTMENT on emergency call outs.

**2. HARDWARE SPECIFICATIONS**

All equipment and material used shall comply with the requirements of the DEPARTMENT's Standard Specifications for Road and Bridge Construction. Failure to meet the DEPARTMENT's specifications shall be justification for permanent removal of the non-compliant equipment by the DEPARTMENT, with the cost of removal to be the responsibility of the LOCAL AGENCY.

Any costs incurred as a result of exceeding the DEPARTMENT's specifications for installing new equipment or painting new or used equipment; for example, installing decorative style poles, posts, or mast arm assemblies, will be the sole responsibility of the LOCAL AGENCY.

**3. HIGHWAY LIGHTING**

For maintenance involving combination traffic signal and lighting unit mast arm assemblies and poles, the foundation, traffic signal mast arm assembly, pole and all signal cable shall be considered part of the traffic signal system. The lighting arm, luminaire and all lighting cable shall be part of the highway lighting system.

The highway lighting system components of each combination mast arm assembly and pole shall be tested for proper operation and physical condition during the intersection cabinet inspection, or at least every six months. All cost of inspecting and maintaining the highway lighting system equipment, is the responsibility of the LOCAL AGENCY. In addition to regular inspection and maintenance, all cost of repairing or replacing damaged or missing highway lighting system equipment is the responsibility of the LOCAL AGENCY.

**4. EMERGENCY VEHICLE PREEMPTION SYSTEM**

Test Emergency Vehicle Preemption System (EVPS) equipment for proper operation and physical condition during the intersection cabinet inspection, or at least every six months. All program settings and each sequence of operation must be verified to be correct during each inspection. All cost of inspection and maintaining the EVPS equipment, including the light detectors, light detector amplifiers, radio transmitters and receivers, antennas, confirmation lights, and cables and related components, is the responsibility of the local fire district or LOCAL AGENCY. In addition to regular inspection and maintenance, all cost of repairing or replacing damaged or missing EVPS equipment is the responsibility of the local fire district or LOCAL AGENCY.

## 5. RAILROAD PREEMPTION

At all locations with railroad/traffic signal interconnects, respond to any and all emergency all red flash alarms in a timely manner and notify the Illinois Commerce Commission and the DEPARTMENT of the malfunction.

None of the traffic signal railroad preempt parameters including but not limited to the phase timings, phase sequences and pedestrian and vehicular clearance intervals can be modified without prior approval from the DEPARTMENT and the Illinois Commerce Commission.

Maintain unique spare controller data modules or sets of data chips containing the final railroad preemption parameters for each location.

Cooperate in any inspection as deemed necessary by the DEPARTMENT or the Illinois Commerce Commission.

The DEPARTMENT shall provide contact personnel available at all times to who railroad preemption malfunctions must be reported.

## 6. DAMAGE REPAIRS

Repair or replace any and all equipment damaged by any cause whatsoever.

## 7. ACCIDENT DAMAGE

Be responsible to make recovery for damage to any part of the installation or system from the party causing the damage.

Whenever third party claims cannot be recovered, the DEPARTMENT shall share in the loss.

## 8. TEMPORARY TRAFFIC CONTROL

Provide temporary traffic control during a period of equipment failure or for when the controller must be disconnected. This may be accomplished through the installation of a spare controller, placing the intersection on flash, manually operating the controller, manually directing traffic through the use of proper authorities, or installing temporary stop signs which will be removed once the signal is in working condition.

## 9. EMERGENCY PERSONNEL

Provide skilled maintenance personnel who will be available to respond without delay to emergency calls. This may be provided by agency forces, contract, or maintenance agreement. Controller failure, lights out, knockdowns, or two (2) red lights out at intersection are considered emergencies.

Provide the DEPARTMENT the names, addresses and telephone numbers of at least two persons, who will be available for emergency repair of the traffic signals and keep the DEPARTMENT informed of any changes of same.

## 10. L.E.D. SIGNAL HEADS

Maintain all light emitting diodes (L.E.D.) signal heads according to instructions provided by each head's manufacturer and vendor so as to prolong their life and assure compliance under any warranties.

**B. AS REPORTED OR OBSERVED**

**1. LAMP REPLACEMENT**

Replace burned out lamps for all red signal indications within twenty-four (24) hours of notification of burnout or on the next business day following the notification. However, if two or more red indications for an approach are burned out, these lamps must be replaced as soon as possible, and under no circumstances longer than twenty-four (24) hours after notification. Replace all other burned out lamps within forty-eight (48) hours or next business day of notification of burnout. Lamp changes shall always include a lens cleaning.

**2. SIGNAL ALIGNMENT**

Keep signal heads properly adjusted, including plumb, and tightly mounted. All controller cabinets, signal posts and controller pedestals should be tight on their foundations and in alignment.

**3. CONTROLLER PROBLEMS**

Check the controllers, relays, and detectors after receiving complaints or calls to ascertain that they are functioning properly and make all necessary repairs and replacement.

**4. L.E.D. SIGNAL HEAD REPLACEMENT**

Provide replacement light emitting diodes (L.E.D.) signal heads that conform to the latest applicable Institute of Transportation Engineers (I.T.E.) specifications for L.E.D. signal heads, including but not limited to, color and intensity requirements.

**5. PAINTING**

Repaint all signal components exposed to weather as needed.

**C. WEEKLY**

**1. MASTER CONTROLLER SYSTEMS**

At locations that are a part of a closed loop signal system maintained by the LOCAL AGENCY, repair any and all malfunctions in a timely manner so that the signals remain under the control of the master at all times.

Assist in the implementation of the signal system timing plans.

Maintain the central signal system software on a PC so that the signal system is monitored weekly. Check weekly by phone or location visit for any malfunction. Verify software accuracy to central office software.

## **D. BI-ANNUAL**

### **1. CABINET INSPECTION**

Check the controllers, relays, and detectors to ascertain that they are functioning properly and make all necessary repairs and replacement.

Keep interior of controller cabinet in a clean and neat condition at all times.

### **2. OBSERVE SIGNALS**

Observe the signals at the time of the bi-annual cabinet inspection. This involves stopping and watching for correct detection and timing operation.

### **3. DETECTION TESTING**

Test and inspect vehicle detection inductance loops, loop detectors, and pedestrian detection during cabinet visit bi-annually.

### **4. VIDEO DETECTION TESTING**

Inspect, maintain, and clean all video detection and surveillance systems every six months or as needed, to achieve clean lenses, proper alignment and proper focus. This shall include system camera, lenses, camera housings and hood/shield, pan, tilt, and zoom mechanisms and motors, mounting brackets and hardware, poles, microprocessors, controller, cables and communication equipment, and other related components. Maintenance shall include modifications to programmable detection zones.

## **E. ANNUAL**

### **1. RELAMP**

Clean reflectors, lenses and lamps once every twelve (12) months or as needed. Replacement of lamps shall be performed on the same occasion as the cleaning required in this provision.

### **2. CONTROLLER CHECK**

Remove and clean and overhaul the controller (except solid-state), relays, special auxiliary control equipment, and time clocks once a year or more often if necessary. When solid state controllers malfunction, they shall be removed, repaired, and bench checked. Solid state controllers shall not be removed for annual maintenance inspections.

This annual check should verify software with central office software and reprint cabinet pack timings sheet. Controller check shall occur during a bi-annual cabinet inspection.

### **3. CONFLICT MONITOR TESTING**

Conduct a complete test of each conflict monitor and malfunction management unit. The following tests shall be performed: Indicator, System/Timing, Conflict/Voltage/Clearance, Green/Green Permissive, Complete Permissive, and Extended (inc. Red/Green Dual Display, Watchdog Failure, etc.). It is recommended that testing be performed with the aid of an automated conflict monitor tester.

### **4. FUSE AND BREAKER CHECKS**

Fuse and breaker check should occur during a bi-annual cabinet inspection. Replace burned out fuses or deteriorated breakers as needed.

#### 5. CLEARANCE TRIMMING

Remove any obstruction blocking the line of sight of the traffic signal face to the motorist. The maintaining agency shall trim trees, bushes or any other form of vegetation blocking said lines of sight. The maintaining agency shall remove, or order the removal of, any man-made obstructions such as signs or banners blocking said line of sight. Visibility for line of sight shall meet the standards established and contained in the Manual on Uniform Traffic Control Devices for Streets and Highways. (MUTCD). All trimmed vegetation shall be legally disposed of by the maintaining agency off the right of way.

#### 6. HARDWARE INSPECTION

Inspect all mast arm assemblies, mast arm poles, brackets (or other types of hardware) supporting traffic heads or pedestrian signal heads on an annual basis. The inspection shall focus on the structural elements of the mast arm assembly and must include a close up, arms length investigation of the mast arm, pole, mast to pole connection, base plate, and anchor bolts.

The arm of the assembly shall be visually inspected at all signal head connections for any defects, such as cracks or buckles. Inspect the mast arm to pole connection for significant loss of section, cracks in welds or base metal, and deterioration of the connection plates. The bolts of the arm to pole connection shall be inspected for tightness and condition. Check the pole for external corrosion, impact damage, rust through perforation, deflection, distortion, or cracking. Closely inspect pole for corrosion near the base plate, especially if mounted on a grout bed. Check welds of the pole to base plate connection for cracks. Inspect base plate for section loss or deformation. Inspect mast arm anchor bolts for any corrosion or bending, and for loose or missing nuts.

Upon discovery of any buckles or significant structural defects (loose or missing nuts, severe corrosion or dents, cracks in welds, plate or structure, etc.), immediately notify the DEPARTMENT.

#### 7. PAVEMENT MARKINGS

Inspect pavement markings and replace as necessary to insure proper motorist and pedestrian guidance. Insure that stop bars, symbols and crosswalks are in good condition. Insure lane, edge and center lines, and reflectors, provide clear delineation for motorists during daytime and nighttime.